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EXAMINER
KADING, JOSHUA A

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/693,251	Applicant(s) VICISANO ET AL.	
	Examiner Joshua Kading	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,4,6-14 and 16-25 is/are rejected.

7)☒ Claim(s) 3,5 and 15 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 October 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 3 discloses, "said first processor and said second processor are different processors." This fact was already established in independent claim 1 by claiming "a first processor..." and "a second processor..." If there are two processors then they are not the same processor; they are two separate entities.

Claims 13, 17, 21, and 23 are objected to because of the following informalities:

Claim 13, line 6 states, "in response said loss report". It should be changed to --in response to said loss report--.

Claim 17, line 2 states, "at "at least one", port". It should be changed to --for at least one port--.

Claim 21, line 2 states, "the next upstream router". It should be changed to --a next upstream router--.

Claim 23, line 7 states, "transmitting an outgoing". To place the limitation in proper means plus function format, the phrase --means for-- must be inserted before the limitation.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

The claim following claim 24 was misnumbered as claim 21 and has been renumbered as claim 25.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4, and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 states, "said first processor and said second processor are the same processor." It is unclear how a first processor and a second processor can be the same processor. By declaring a first processor and a second processor, applicant is saying there are two processors. Therefore, saying they are the same is inconsistent and contradictory with the independent claim.

Claims 4 and 14 recite the limitation "a largest loss rate" in line 1 and line 2 respectively. There is insufficient antecedent basis for this limitation in the claims. The term "largest" implies that there is more than one loss rate. However, there is insufficient antecedent basis for a plurality of loss rates in the claims.

Claim 6 states, "a linecard supporting at least one of said plurality of ports, said linecard having a linecard processor and a memory mounted thereon, said linecard processor computing said loss of packets." If the linecard processor computes the "loss of packets" and the first processor of claim 1 also computes the "loss of packets" does this mean there are two processors that do this, or are they the same processor? If they are the same processor, why are they not disclosed as such?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

As understood at this time, claims 1, 6-13, and 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent 6,188,674 B1) in view of Chen et al. (U.S. Patent 5,793,976).

In regard to claim 1, Chen ('674) discloses "a router controlling congestion on links attached to the router, comprising:

a plurality of ports (figure 1, elements 10(1), 10(2), 10(n), 30(1), 30(2), and 30(n));

a first port of said plurality of ports for receiving a data packet (figure 1, element 10(1) where the network deals with packets as can be seen in figure 2);

a second port of said plurality of ports for transmitting said data packet (figure 1, element 30(1));

a first processor to determine loss of packets on selected ports of said plurality of ports (figure 1, element 32; col. 6, lines 60-67 and col. 7, lines 1-9 where the LPC keeps track of the lost packets)..."

However, Chen lacks "a receiver to receive an incoming loss report message...a second processor to calculate, in response to said loss report and said loss of packets, a loss rate statistic...a transmitter to transmit an outgoing loss report message through said first port, said outgoing loss report message containing a field having said loss rate statistic written therein." Chen ('976) however, discloses "a receiver to receive an incoming loss report message (figure 6, element 38; figure 4 where it shows the loss accumulating management cell (col. 9, line 41) or the loss report message being sent to the next node in the system, it is noted the nodes correspond to switches which function as routers)...a second processor to calculate, in response to said loss report and said loss of packets, a loss rate statistic (figure 6, element 38 where the loss rate statistic is calculated using the cell loss count from the packet which was obtained from the

previous node described in Chen ('674), this can be read in col. 9, lines 40-46)...a transmitter to transmit an outgoing loss report message through said first port, said outgoing loss report message containing a field having said loss rate statistic written therein (figure 6, element 44 where the output is a loss report message as defined earlier and in it contains the loss rate statistic as can be seen in figure 1, element 12)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include receiving the loss report on the "second port", the second processor, and the transmitting of the loss statistic with the rest of the router for the purpose of measuring and reporting virtual connection performance parameters. The motivation is to accurately determine an end-to-end quality of service of the virtual connection (col. 4, lines 43-49).

In regard to claim 6, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('976) lacks "a linecard supporting at least one of said plurality of ports, said linecard having a linecard processor and a memory mounted thereon, said linecard processor a computing said loss of packets." Chen ('674) however, further discloses "a linecard supporting at least one of said plurality of ports, said linecard having a linecard processor and a memory mounted thereon, said linecard processor a computing said loss of packets (figure 1, elements 10(1), 11, and 12 where the linecard is element 10(1), the processor is element 11, and both elements 11 and 12 contain memories)." It would have been obvious to one with ordinary skill in the art at the time of invention to

include the linecard with processor and memory with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 7, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('976) and Chen ('674) lack "said loss report is carried in a NAK packet." Although both Chen ('976) and Chen ('674) lack the NAK packet, it would have been obvious to one with ordinary skill in the art at the time of invention to use a NAK packet. As in claim 1, Chen ('976) discloses a loss accumulating management cell, which carries loss report information. It is a matter of design choice whether a loss accumulating management cell is used or a NAK packet. The motivation being they both achieve the desired result of delivering the loss report to the next node.

In regard to claim 8, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('674) lacks "said loss report message is transmitted by said router in response to the router receiving a loss report message from a down stream router." Chen ('976) however, further discloses "said loss report message is transmitted by said router in response to the router receiving a loss report message from a down stream router (figure 4 where it can be seen that the loss report is sent from one node in response to the previous node sending a response)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the loss report message being transmitted by a router in response to receiving a loss report message with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 9, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('674) lacks "said loss report message is transmitted by said router in response to the router receiving a loss report message from a target receiver station." Chen ('976) however, further discloses "said loss report message is transmitted by said router in response to the router receiving a loss report message from a target receiver station (figure 4 where it can be seen that the loss report is sent from one node in response to the previous node, or receiver station, sending a response)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the loss report message being transmitted by a router in response to receiving a loss report message with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 10, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('976) lacks "said loss report message is periodically transmitted by said router." Chen ('674) however, further discloses "said loss report message is periodically transmitted by said router (col. 7, lines 59-60 whereby performing a periodic packet loss calculation, the data can then be sent out according to Chen ('976) on the same periodic basis)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the periodic loss report transmitting with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 11, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('976) lacks "a central processor (CPU) forwarding engine, said CPU forwarding engine determining which port said loss report message is to be transmitted out through." Chen ('674) however, further discloses "a central processor (CPU) forwarding engine, said CPU forwarding engine determining which port said loss report message is to be transmitted out through (figure 1, element 25 where the switch controller determines which port the data packet or any packet is to be outputted to)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the forwarding engine with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 12, Chen ('674) and Chen ('976) disclose the router of claim 1. However, Chen ('674) lacks "a central processor (CPU) control engine, said CPU control engine generating said loss report message." Chen ('976) however, further discloses "a central processor (CPU) control engine, said CPU control engine generating said loss report message (figure 6, element 44; col. 10, lines 44-57 where the CPU generates the management cell or loss report and sends it out)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the control engine generating said loss report message with the router of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 13, Chen ('674) discloses "a method for operating a router, comprising:

receiving a multicast group data packet at a first port (col. 2, lines 66-67 and col. 3, line 1);

transmitting a replica of said multicast data packet from a second port (col. 3, lines 1-3);

computing a loss of packets on selected ports of said router (figure 1, element 32; col. 6, lines 60-67 and col. 7, lines 1-9 where the LPC keeps track of the lost packets)..."

However, Chen ('674) lacks "receiving an incoming loss report message on said second port...calculating, in response [to] said loss report and said loss of packets, a loss rate statistic...transmitting an outgoing loss report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message."

Chen ('976) however, discloses "receiving an incoming loss report message on said second port (figure 6, element 38; figure 4 where it shows the loss accumulating management cell (col. 9, line 41) or the loss report message being sent to the next node in the system, it is noted the nodes correspond to switches which function as routers)...calculating, in response [to] said loss report and said loss of packets, a loss rate statistic (figure 6, element 38 where the loss rate statistic is calculated using the cell loss count from the packet which was obtained from the previous node described in Chen ('674), this can be read in col. 9, lines 40-46)...transmitting an outgoing loss

report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message (figure 6, element 44 where the output is a loss report message as defined earlier and in it contains the loss rate statistic as can be seen in figure 1, element 12)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include receiving the loss report, calculating a loss rate statistic, and the transmitting of the loss statistic with the rest of the method for the purpose of measuring and reporting virtual connection performance parameters. The motivation is to accurately determine an end-to-end quality of service of the virtual connection (col. 4, lines 43-49).

In regard to claim 18, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('976) and Chen ('674) lack "said loss report is carried in a NAK packet." Although both Chen ('976) and Chen ('674) lack the NAK packet, it would have been obvious to one with ordinary skill in the art at the time of invention to use a NAK packet. As in claim 13, Chen ('976) discloses a loss accumulating management cell, which carries loss report information. It is a matter of design choice whether a loss accumulating management cell is used or a NAK packet. The motivation being they both achieve the desired result of delivering the loss report to the next node.

In regard to claim 19, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('674) lacks "transmitting said outgoing loss report packet in

response to receiving said incoming loss report packet." Chen ('976) however, further discloses "transmitting said outgoing loss report packet in response to receiving said incoming loss report packet (figure 4 where it can be seen that the loss report is sent from one node in response to the previous node sending a response)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the loss report message being transmitted by a router in response to receiving a loss report message with the method of claim 13 for the same reasons and motivation as in claim 13.

In regard to claim 20, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('976) lacks "transmitting said outgoing loss report packet periodically." Chen ('674) however, further discloses "transmitting said outgoing loss report packet periodically (col. 7, lines 59-60 whereby performing a periodic packet loss calculation, the data can then be sent out according to Chen ('976) on the same periodic basis)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the periodic loss report transmitting with the method of claim 13 for the same reasons and motivation as in claim 13.

In regard to claim 21, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('674) lacks "transmitting said outgoing loss report message as a unicast message to the next upstream router capable of responding to said loss report message." Chen ('976) however, discloses "transmitting said outgoing loss report

message as a unicast message to the next upstream router capable of responding to said loss report message (figure 4, where it is clear that the loss report message is being sent unicast to the next node)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the unicast loss report with the method of claim 13 for the same reasons and motivation as in claim 13.

In regard to claim 22, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('976) lacks "transmitting said outgoing loss report message as a multicast message." Chen ('976) however, discloses "transmitting said outgoing loss report message as a multicast message (col. 2, lines 66-67 and col. 3, lines 1-3 where the data sent can be a loss report as the loss report must also enter and exit the node on the same ports as other data)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the multicast loss report with the method of claim 13 for the same reasons and motivation as in claim 13.

In regard to claim 24, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('976) and Chen ('674) lack "a computer readable media having instructions written thereon for practicing the method of claim 13." It would have been obvious however, to one with ordinary skill in the art at the time of invention to include the computer readable media with instructions for performing the method of claim 13 because this is the on feasible way to implement the method. The motivation being that

to implement the method a fast and efficient means must be implemented and computer instructions are the only way to do this.

In regard to claim 25, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('976) and Chen ('674) lack "Electromagnetic signals carried on a computer network, said electromagnetic signals carrying instructions for practicing the method of claim 13." It would have been obvious to one with ordinary skill in the art at the time of invention to include the electromagnetic signals with the method of claim 13 because this is the way electric signals, including data, signalling, and instructions are transmitted from one device to another. The motivation being the transmission of electric signals is the fastest and most efficient way to transmit the information.

In regard to claim 23, Chen ('674) discloses "a router, comprising:

means for receiving a multicast group data packet at a first port (col. 2, lines 66-67 and col. 3, line 1);

means for transmitting a replica of said multicast data packet from a second port (col. 3, lines 1-3);

means for computing a loss of packets on selected ports of said router (figure 1, element 32; col. 6, lines 60-67 and col. 7, lines 1-9 where the LPC keeps track of the lost packets)..."

However, Chen ('674) lacks "means for receiving an incoming loss report message on said second port...means for calculating, in response [to] said loss report

and said loss of packets, a loss rate statistic...[means for] transmitting an outgoing loss report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message."

Chen ('976) however, discloses "means for receiving an incoming loss report message on said second port (figure 6, element 38; figure 4 where it shows the loss accumulating management cell (col. 9, line 41) or the loss report message being sent to the next node in the system, it is noted the nodes correspond to switches which function as routers)...means for calculating, in response [to] said loss report and said loss of packets, a loss rate statistic (figure 6, element 38 where the loss rate statistic is calculated using the cell loss count from the packet which was obtained from the previous node described in Chen ('674), this can be read in col. 9, lines 40-46)...[means for] transmitting an outgoing loss report message through said first port, said outgoing loss report message containing said loss rate statistic in a field of said outgoing loss report message (figure 6, element 44 where the output is a loss report message as defined earlier and in it contains the loss rate statistic as can be seen in figure 1, element 12)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include receiving the loss report, calculating a loss rate statistic, and the transmitting of the loss statistic with the rest of the method for the purpose of measuring and reporting virtual connection performance parameters. The motivation is to accurately determine an end-to-end quality of service of the virtual connection (col. 4, lines 43-49).

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. ('674) and Chen et al. ('976) as applied to claim 13 above, and further in view of Wesley et al. (U.S. Patent 6,693,907 B1).

In regard to claim 16, Chen ('674) and Chen ('976) disclose the method of claim 13. However, Chen ('674) and Chen ('976) lack "selecting said selected ports as members of a multicast group distribution tree." Wesley however, discloses "selecting said selected ports as members of a multicast group distribution tree (figure 1, where all the routers are part of a multicast group distribution tree as can be read in col. 3, lines 7-9)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the multicast group distribution tree with the method of claim 13 for the purpose of repairing nodes at lower levels of the tree (col. 1, lines 11-18). The motivation being that nodes at different levels not requiring a repair are not "bothered" by the repair request.

In regard to claim 17, Chen ('674) and Chen ('976) disclose the method of claim 13. Chen ('674) and Chen ('976) also disclose "determining a loss rate statistic which has not expired [for at least one] port of said router, where said at least one port includes all ports of a multicast group (Chen ('674) col. 2, lines 66-67 and col. 3, lines 1-3; Chen ('976) figure 6, element 38 where the loss rate statistic is calculated using the cell loss count from the packet which was obtained from the previous node described in

Chen ('674), this can be read in col. 9, lines 40-46)...; writing said loss rate statistic into said outgoing loss report packet and before 6 transmitting said loss report packet (figure 6, element 44 where the output is a loss report message as defined earlier and in it contains the loss rate statistic as can be seen in figure 1, element 12)."

5 However Chen ('674) and Chen ('976) lack "...a multicast group distribution tree..." Wesley however, discloses "...a multicast group distribution (figure 1, where all the routers are part of a multicast group distribution tree as can be read in col. 3, lines 7-9)..." It would have been obvious to one with ordinary skill in the art at the time of invention to include the multicast group distribution tree with the method of claim 13 for 10 the purpose of repairing nodes at lower levels of the tree (col. 1, lines 11-18). The motivation being that nodes at different levels not requiring a repair are not "bothered" by the repair request.

Allowable Subject Matter

15 Claims 5 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

20 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lo et al. (U.S. Patent 6,031,818) shows unicast and multicast NACK's and repairs. Trofin et al. (U.S. Patent 6,661,778 B1) shows a system that

gathers node statistics and sends them to a central location for processing. Bhagavath et al. (U.S. Patent 6,501,763 B1) uses packet loss report messages.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joshua Kading
Examiner
Art Unit 2661

JK
February 26, 2004

KENNETH VANDERPUYE
PRIMARY EXAMINER